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## THE CONSEQUENCES OF WAR AND THE BIRTH RATE IN FRANCE

By M. LUCIEN MARCH

TREASURER OF LA SOCIÉTÉ FRANÇAISE D'EUGENIQUE

**A**S a result of the war, the France of 1914 has lost 1,400,000 of her inhabitants in the prime of life, most of them fit for producing children. And among the survivors of the fighters of the great war, a certain part of the 800,000 total invalids will never be able to produce strong healthy children, either because they are no longer capable of marrying, or because they are affected with tuberculosis or other constitutional maladies.

To these direct losses must be added the loss of births. Before the war, the number of living births balanced with a slight excess the number of deaths; the annual number was about 750,000. During the six years from 1914 to 1919 inclusive, the deficit reached 400,000 births, which ought to have survived normally and which were lost owing to the war.

On the other hand, deaths in the civil population have been more numerous than formerly, so that 400,000 more deaths are added to the 1,400,000 unborn and to the 1,400,000 soldiers killed in war, giving a total of more than 2,000,000, taking into consideration possible repetition and immigration. These results are calculated on the supposition that, in the invaded regions, the loss, estimated proportionally to the number of inhabitants, was the same as in the uninvaded territory; on the other hand, the numbers are applied to the territory of 1914, but Alsace and Lorraine can not nearly fill the loss of population of this region. The provisional results of the census of 1921 confirm these suppositions.

But that is not all. Privations have broken down the health of many children born during the war or a few years before, especially in the regions of the northeast, where, during the German occupation, they lived in a state of veritable physical misery. Indeed, infant mortality, even in the uninvaded districts, has been notably higher during the war than before, in spite of the low birth rate.

Finally, a certain recrudescence of alcoholism, tuberculosis, venereal disease and various nervous diseases influenced unfavorably the vitality of the nation and the race.

Many years will be necessary to repair the loss of population, direct

or indirect, attributable to the war or to the evils which have accompanied it.

To avoid the inauspicious consequences of these miseries, certain people believe it is necessary to encourage procreation by all possible means; they do not fear an excess of population for a long time. Others think it expedient that each man of proper age to have offspring should have the 3 or 4 children necessary to permit a moderate increase of population. And still others estimate that a continued increase of population would create an economic peril and contain the germ of future wars. Again some wish certain restrictions, especially in confinements, among the poorest of the population, to improve the quality of this population.

The considerations which are the most important are the following, which shall be examined from the point of view of eugenics and the point of view of economics.

### I.

To-day, respect of human life in all its degrees makes us condemn infanticide and abortion. There remains then as a means of artificial selection only the prevention of births.

But the universal concern which determines parents to limit the number of their children is the burden, at least momentarily, which the latter represent.

The question of the birth rate, in its entirety, with an exception to be referred to later, comes back again to a question of economic morale. For physical passion finds play without producing the being which is its end, and this being is often to-day the reward of a sacrifice freely agreed upon.

Humanity ought not to perish by its own error. Such is the higher principle which ought to be reconciled with the practical impossibility of unlimited multiplication.

According to etymology and the definition given by Galton, eugenics is a general study of the improvements of which the race is susceptible, race being characterized by common physical or mental qualities manifesting themselves in certain groups of men and differentiating them from other groups. Two conceptions enter here, that of improvement, and that of the race. To what realities do they correspond?

We cannot define progress, the process of making perfect; but, when we look back, we feel the differences which separate the life of other times from that of the present; evolution appears to us to follow a certain direction. We can then legitimately aim to continue life in this direction.

In the second place, although in a biological sense pure human races are not numerous, one can prove that a number of groups of in-

dividuals are distinguished by their physical and mental characters, apparent and distinct as a whole, from another group. Without modifying these characters to the point of making the differences disappear, one can improve their manifestations, the manner in which they act in each human group; that is the aim which eugenics seeks. But we must not lose sight of the fact—for other sciences, the science of education for example, seek the same end—that eugenics is concerned, it seems, only with measures capable of effect upon descendants, that is to say, transmissible by heredity or capable of operating a selection advantageous for future generations.

The general principles of this new science have not yet been well established. It is not yet settled; it is still in a period of development. And this permits some liberty, some difference of opinion to those who try to attack the problem.

There are, however, acquired facts, indisputable connections; for the moment we may withdraw to this ground.

Whatever our opinion as to the relative importance of the factors heredity or environment—that is the principal point on which personal opinions are opposed—the influence of heredity can not be denied. Physical and mental resemblances of parents and children are obvious; the hereditary transmission, at least in the most closely related generations, of certain physical peculiarities, such as stature, conformation of the skull, hemophilia, polydactylism, etc., or of mental defects such as epilepsy, certain forms of mental deficiency or feeble-mindedness, are to-day almost proved. Provided always that the tendencies involved are simple and that their existence can be removed, resemblances between children born of the same parents do not prevent great differences sometimes appearing in these children. The heredity of abilities or that of defects is not a matter of fate: education may modify nature.

As to the influence of environment, of the mode of development of the created being, whatever may be its importance for this being itself, the question which interests eugenics is to know whether this influence acts upon the descendants after being hidden for a number of generations. On this point, certain savants, Weismann in particular, have declared negatively. Others have shown, by experiments on lower organisms, that organic modifications brought about in these organisms are transmitted to their descendants.

As Dr. Apert has remarked in France, as far as man is concerned, it seems that only the modifications relating to the nervous system have yielded, up to the present, observations truly conclusive. Yet the interpretation of these facts has been contested; they have been attributed to hereditary predispositions, but it is always easy to draw into the re-

sults of an observation the effect of a hidden influence as mysterious as that of heredity.

Our knowledge is not sufficient to warrant our issuing a challenge on these obscure questions. And yet of such great importance to humanity is a sustained and growing development of scientific researches relative to the heredity of man, that this is the desire of all those who are interested in eugenics.

The transmission of character, from one generation to another, works through the germ-plasm, but this action can be guided by selection: natural selection by death, artificial selection by sexual union.

M. Edmond Perrier, president of the Société française d'Eugénique, recently stated that, in primitive nature, natural selection may not have had the exclusive effect which the Darwinians have attributed to it. Moreover, what precisely is natural selection? Does it mean simply that an individual incapable of adapting itself to the conditions imposed on it by environment disappears and only those individuals survive who are capable of adapting themselves? That does not add a great deal to our knowledge, as Mr. Balfour (speaking before the First International Eugenics Congress) remarked, since it amounts to saying that only those are capable of surviving who survive a veritable truism. And if one means that only those survive who are capable of surviving, M. Perrier answers (*Eugénique*, mai 1921, page 197) that those who are incapable of surviving in one region can escape death by flight, and it is thus perhaps that the living world has evolved.

In truth, death and survival are a form of selection from which may result for humanity, as for all living beings, good or evil according to the qualities of the individual involved and the surrounding circumstances. If we are unable to modify the innate qualities of the individual, we may often, by acting upon the surrounding circumstances, make useful the qualities which it has.

This is one of the essential duties of eugenics: to favor and encourage the work of health and the work of educating the promoters of social progress.

As to artificial selection, we may endeavor to increase births among those who possess the best qualities and to decrease births among those who show defects and faults. However, we ought to ask ourselves whether there does not exist now and then a certain opposition to these two movements: that which makes for the improvement of conditions of existence and that which makes for the best qualities in the descendants.

Opposition has been noted many times, especially among English eugenicists. Nature, they say, in a convenient anthropomorphic language, nature has arranged for the beings least endowed for life, to disappear before those who are better endowed. This observation

is just; admitting that in the shadowy beginning of life, flight was a means of preservation, this means is not worth much when it is impossible to flee from danger. This is the case when illnesses and bodily struggles cause the disappearance of the least worthy beings, the least capable of resistance. But when human fraternity, pity, science, and hygiene unite their efforts to defend the weak, many individuals who would have disappeared if left to themselves, live in spite of their disabilities and transmit these to their descendants. As is often remarked, the humanitarian tendencies of our time, our social legislation and all the measures which come from the same principle, have this effect—of which people are not sufficiently warned—to oppose the play of natural selection. This manner of thinking contains a great deal of truth. However, no defender of eugenics thinks of suppressing pity, or hygiene, to reestablish natural selection in its barbaric despotism. The efforts of humanity tend to utilize the natural forces for their own ends and not to let them act blindly. Also when the ideal of healthfulness and social progress is opposed to the ideal of perfection of race, because the first is contrary to the effect of natural selection, it becomes necessary to demand from artificial selection much more important effects, and especially those better regulated, than those which it produces among primitive peoples.

This we shall now consider in passing to the special question of birth. Even though we can lessen the effects of natural selection, we can much more surely intervene by artificial selection to favor the perfecting of the race and above all to prevent its degeneration. The point is to make good use of this power.

## II.

In all times, man has tried to deal with the multiplication of his race. Independently of wars, famines, epidemics, whose destructive effects extend themselves over entire populations, suppression of infants already born, abortion, and prevention of births have been practised.

Eugenics, as well as economics, can, to be sure, tell us what the social interest demands. From the point of view of eugenics, the experience of centuries and of numerous researches teaches us above all that there are transmissible defects, reproduction of which must be avoided at all costs. These are notably the hereditary predispositions to insanity, to feeble-mindedness, to epilepsy, and to detrimental malformations; or again the acquired dispositions chargeable to the poisons of the nervous system, such as alcohol and the spirochete of syphilis.

Evidently one can not always be sure in advance of the effect of those influences which, acting in the mass, result in differences. Never-

theless there are individuals whose duty it is not to procreate, not to give birth to offspring, since the chances of deformity or mental deficiency are really too great. This duty is all the clearer when one is forced to conserve the life of those beings who, in other times, would have been condemned to a more rapid death by the brutalities of existence.

Apart from circumstances which justify and command abstinence, there are still others which can be drawn in very legitimately to limit the number of children; for instance, in the very crowded urban districts, the insufficiency of homes and the promiscuity cause an excessive mortality when families are large, and there are no means for choosing spacious dwellings. Finally, there are individual proprieties worthy of respect, for example, the care of the mother's health when she cannot stand numerous pregnancies, not to speak of the limits which can impose the legitimate fear of an undeserved loss, if a large family assumes a burden which surpasses its strength.

We cannot then accept the formula of an unfortunate equality, which would impose on all adults the obligation of having a determined number of children, any more than we would dream of recommending an unlimited fecundity. It is therefore necessary to discard formulas which are precise but too simple and to keep within the bounds of asking that each adult have children if he reasonably can. Each one, in fact, has the duty of transmitting the life that he has received, as well as of improving the value of that life just as those who have preceded have striven to do. And thus is imposed, according to the limits of one's means and capacities, the duty of perpetuating the family to which one belongs, the duty of contributing to the scope of one's country and to the progress of all humanity.

The formula is doubtless very vague; it is addressed to conscience, for it is conscience alone which is the judge of the degree to which the order has been obeyed. It is the same as when one appeals to the conscience of each one to participate in the defence of country or of national burdens. In this case, it is true that legislation enforces the moral obligation; is it not necessary that legislation also intervene in favor of the birth rate? The answer to this question is not doubtful; we can not omit a certain social organization capable of stimulating conscience and assuring the desired result, that is to say, the number of births which appear necessary for the whole population.

However, two objections have been made. One declares that before increasing the birth rate, it would be better to reduce mortality and, above all, infant mortality.

It is obvious that all measures capable of reducing mortality are good in themselves. But, since the remotest historical times, it has not appeared possible to lengthen the maximum of human life. We can

only hope to lengthen the mean duration of life. But that will not produce an appreciable increase in population in the countries where the number of births depends on familial foresight, when the parents determine, so to speak, in advance the number of children they will raise. Three years out of four in France, the number of births in one year is related to the number of infants who have died in the preceding; if many children die, they are replaced.

The second objection is that instead of seeking the striving for a great number of children, it is preferable to concern oneself about the quality. We have seen that the quality of population is in fact the principal aim of eugenics.

We shall consider successively the family and the nation.

In the family, when the number of children does not exceed the reasonable limit of which we have spoken, one can affirm that quality, far from being opposed to quantity, goes hand in hand with it. The case of the only child has often been tried. Numerous examples have also been cited of brilliant men who are among the young members of families, sometimes of very high rank.

As to the nation, she may claim a certain choice, a selection the importance of which we have mentioned in the first part of this paper.

But, admitting that those who carry defects are to be prevented from procreating, what sign enables us to recognize inferiority and superiority of qualities? It has been proposed to take wealth for an index. Numerous inquiries have proved in fact that in the slums of cities, among the individuals who have no care for the morrow, are found the greatest number of transmissible defects and the most afflicted children. On the other hand, manifestations of intelligence and various abilities have appeared more frequently in the children of well-to-do families than among those of poor families.

But here the influence of environment as well as that of education is considerable. Omitting the small part of the population which is composed principally of social outcasts, we can not but affirm that the innate qualities (we do not speak of acquired qualities) are less in the families of small income than those of large income, especially if one takes into consideration all classes of population, city and country, intellectual and artisan.

Reserving the elimination of undesirables, it does not seem that there is serious reason, from the single point of view of eugenics, to seek births in one class of population more than in another. The numerous statements which have been made on the retrogression or even the degeneration of families which have not renewed themselves sufficiently, tend on the contrary to promote the incessant mixing of social classes rather than their separation. When one considers the state of the population, one perceives great differences in the birth rate.



In France, the birth rate is generally greater in the country than in the city, greater in the mountainous regions than in the valleys, greater among agriculturists, sailors, fishermen, the colliers of the north, the heads of great industries, than in the middle classes, among artisans and especially among clerks. These differences explain themselves; they appear in the nature of things, and, for the moment at least, they do not carry any danger. We know that depopulation does not reach the towns, which are being filled unceasingly by an influx of inhabitants from the country. It is then the birth rate in the country upon which effort should principally be brought to bear; it is there that results can be gained most easily, at the least expense and under the best conditions from the point of view of hygiene, as well as from the point of view of eugenics.

Moreover, social action ought not to confine itself to facilitating the birth of children; it is also necessary to raise children up to a certain age. Questions of education, emigration and immigration are also questions on which eugenics has something to say, especially the question of immigration which has gained since the war an importance and character previously unknown in France.

Eugenics has also something to say on the psychological and moral side of the question of birth rate. Prevention of births, regarded as necessary in a certain measure, can be recommended only according to the means indicated by Malthus; the delay of marriage.

Fecundity of marriage, which one supposes sufficient to allow the maintenance of a healthy family well adapted to life, ought not to be fettered by an excessive fear of life, or by the fear of effort. No hope of the future can be realized except with a certain present sacrifice. It is necessary to make some personal sacrifices and to have hope in the future.

These sacrifices will be moreover fruitful for posterity. In what measure can they be shared; what profit can they yield for it? That is what the examination of the question from the point of view of economics will show.

### III.

The economic power of a country depends primarily on its producers, that is to say, on those who by their work render natural riches serviceable.

Now we have already seen the loss of population since the war. The loss comes principally from the avoidance of marriage. During the war, many young men rightly wished to wait for the end of hostilities before marrying. Hence has resulted the increase of marriages in 1919 and 1920. The same phenomenon has been observed after all wars; it is easily explained.

But in spite of this the deficit is an important fact in our country and in Belgium. While the population of Great Britain has increased by 1,300,000 during the same time, that of Germany has hardly diminished and if it has diminished at all, we are still ignorant of it.

Imagine the state of the French population in fifteen years. At that time, there will be lacking, taking account of the mortality, 500,000 young men of the ages of 15 to 21 years, a loss which must be added to the 1,400,000 men of 18 to 50 years of age killed during the war, and who would then be 33 to 65 years old, as well as the 500,000 young men of the same ages who have died in the civil population in excess of the normal mortality. In all, about 2,000,000 individuals will be missing from the male population of 15 to 65 years.

In 1935 one sixth of those whose work must furnish the principal source of income of the nation will be lacking. In spite of the restoration of Alsace-Lorraine, which brings us 400,000 adults of 15 to 65 years but which also demands workers for its fields and iron foundries, it is certain that French production will be deprived of an important part of its active forces and that the economic life of the country will languish for many years if energetic measures are not taken without delay to ward off the threatening deficit.

Without doubt, one might temporarily appeal to foreign workers. Assimilable populations, however, can furnish only a small part. It will be necessary to have recourse to unassimilable races very different from ours, which will quickly furnish undesirable elements.

The deficit of male workers has caused the more general employment of women. But the women who work cannot be fruitful mothers. Feminine work will be only a short-lived mitigation.

For all time, since the infant brings care and pain as well as joy, maternity has been a cause of care and effort. Among primitive tribes which are displaced, it is necessary not only to nourish but even to carry these children. In our civilized societies, and especially in urban centers, where civilization is most refined, the burden is often very heavy. The difficulties of lodging, the hindrances of traffic, the care for appearance, which is applicable to children as well as to parents, the care for the health of the mother and all the complications of urban life; the laws for working women, the educational obligations and the impossibility, in poor families, of using the work of young children, make the maintenance of even a limited number of children sufficiently burdensome.

Formerly in poor families, who are the most numerous, the help which grown children gave to their old parents, compensated in some measure for the privations which they had caused at first. To-day, collective insurance is substituted for this kind of family insurance of previous times. In consequence, the child usually never brings any

repayment in exchange for what he cost. Also the care for his future causes the foresighted parents of our time to assure themselves of the excellent probabilities of his future establishment, which leads them also to restrain their responsibility. When the children may soon be an aid to the family, the burden is much lighter. Moreover one finds the greatest number of children among the people chiefly concerned with agriculture, and, in every country, in the rural populations.

However, the first obstacle to births is the possibility of raising the children. Doubtless this obstacle exists for many animal species and does not hinder their fecundity, but in those species there is no reasoning power, no foresight, no respect of life, at least in a degree comparable to that which may be observed in civilized human society.

A second obstacle, which does not exist in any degree outside of humanity, is the foresight of parents exercised beyond the time of growth of their children. It is not sufficient to have brought children into the world and to have raised them to an age when they have strength enough to answer for themselves; the environment in which they are placed must permit them to live. To understand the economic mechanism of the phenomenon of birth it is convenient to distinguish three orders of circumstances:

1. The means of keeping children alive during their growth.
2. The eventual means by which these children can live by themselves after growth.
3. The view of parents on these future circumstances.

It is necessary to understand here by means of life, the means of leading a certain kind of life; one can say in general that it is a kind of life at least equal to that to which the parents are accustomed. Often even, the parents desire their children to reach a higher stage of life.

But the means of living are governed in part by circumstances external to living beings and in part by the circumstances which depend on these beings themselves. The analysis of these circumstances makes up what is called the theory of population.

Long before Malthus, who formulated this theory, estimates had been made of the facility of increasing the human species, a faculty analogous to that of every other living species, when no limitation intervenes. It is wrong to censure Malthus for having employed the formula of geometric progression, since a simple reasoning founded on a not dissimilar hypothesis establishes it. Where Malthus appears to be mistaken is in his attempt to justify his law by experience or to deduce from one isolated experience the reason of progression. If he could have extended his observations still farther, he would have seen that this reason was not constant, and in consequence the progression was not geometric.

If on the contrary one keeps to the domain of hypothesis, as others

had done before Malthus, then supposing that nothing limits the fecundity of women, as a woman can bring into the world at least 8 children, and taking account of cases of involuntary sterility and physiological mortality, it is easy to understand that in thirty years a population not meeting any obstacle would increase in the proportion of 1 to 4 at least, that is to say, that it would be more than doubled in 15 years.

Malthus admitted that the population of the United States doubled every 25 years; a more rapid progression has been cited, that of the Hebrews passing through Egypt: 70 adults became 600,000 in two centuries, which means a doubling in exactly every fifteen years, and corresponds to the period of doubling of capital placed at interest of 5 per cent. a year. Every one knows what a fantastic sum is reached with a sufficient number of periods of doubling. If the doubling every 15 years had taken place since the beginning of historic times, the men living in our time not only could not find place on earth, but would even fill the space which separates our globe from far distant stars. The hypothesis which leads to an idea of constant geometric progression is not verified by facts. In reality the matter changes with the times because of obstacles which meet the indefinite multiplication of a species, for men as well as for all living beings. The interest of the work of Malthus is that this author has classified the obstacles and made a choice.

A second error, which is often made, consists in assigning also a general law to the development of the means of existence. These can only increase by following an arithmetic progression.

This supposed law has no theoretic foundation, even admitting that one works in a limited territory, since the production of subsistence depends on putting to work the means of production. In fact the means of existence have progressed much more rapidly in certain epochs than in others. In the nineteenth century for example, the population of the most civilized states increased more rapidly than during the previous centuries. There is then no general law for increase of population.

If one applies the formula which would recapitulate the theoretic movement of population, one would begin to say that population is developed in the measure that the means of living are developed, that there is a correlation between the two phenomena. But this vague formula is only pure tautology, since one can not conceive of a population which would develop without means of life. Such a formula can serve only as a preliminary to a true theory of population. In order to have a theory, one must indicate some mechanism for the relation between population and the means of subsistence.

The theory of Malthus tends to establish the fact that individuals,

according to nature, have an action weaker than the reaction exercised by it. Inversely, other theorists, before Malthus the mercantilists and populationists, after Malthus the advocates of patriotic fecundity, have claimed that, in certain limits at least, man could always obtain from nature what he needed to live. These two theories have been translated by picturesque formulas.

Where bread is born, man is born, say those who believe in blind fecundity and limited productivity. Where man is born, bread is born, answer those who measure the limitation of fecundity and have faith in the powers of invention.

In reality these brief formulas are too general: in some epochs, and countries natural increase of population tends to diminish production; in other cases the contrary is true.

In China, in India, when the population is increased to a certain degree, a deficient production results in veritable hecatombs of human beings, after which equilibrium is restored. In other countries where patriarchal life has given place to a complicated organization founded on the division of labor and the specialization of services, the means of production increase sometimes to such a point that production surpasses the needs. In this case, it is true, the conditions of existence of the people are in a mutual dependence, and this dependence gives rise to terrible conflicts.

In the human species, as in all living beings, death appears as an inflexible regulator of the interaction of the two factors of life: natural fecundity and nourishment. But, in the human species, the individuals are capable of foreseeing in some measure future events; foresight is the principal instrument of progress of the species and of civilization. Malthus has well noted this difference between the human species and others, and he has declared that for the brutal regulator of other species one may substitute that of reason. This has been expressed, in rather rude form, by a German economist, Julius Wolf, who sees in the universal decrease of the birth rate the effect of rationalism increasing life.

However, Malthus has not seen the importance which this factor will have and the danger which will result when this factor is capable of suppressing all the principles of life. He believed, on the contrary, that the power of instinct would always be stronger than the fear of overpopulation, and he impregnated the thought of his century with a dangerous pessimism.

But is it true that increase of population is necessarily a menace to the existence of this population? The facts answer for themselves. Not only has the 19th century seen the civilized nations increase in proportions unknown in the preceding centuries without these nations having suffered want; but, among them, the most rapid increase in wealth

has gone with the most rapid increase in population. In England at the beginning of the 19th century, poor laws imposed excessive burdens on the parishes, misery ruled and the lamentable state of the population at the beginning of the age of machinery justified later, in the eyes of Karl Marx, its attacks against the capitalistic régime. Since then the production of foodstuffs has diminished, and the population has quadrupled from 9 to 36 million (1911).

At the beginning of the nineteenth century an increase of population was feared in Germany as much as in England. Measures for restraining marriages were even passed in the legislatures of certain states such as Bavaria and Würtemberg. In order to have the right to marry, one had to show sufficient means. Thanks to these restrictive measures and to propaganda, the increase of population remained very slow—slower than in France—during a great part of the nineteenth century. Thus during the period of 25 years, 1847-1871, the number of inhabitants increased 13 per cent. in Bavaria, and 9 per cent. in Würtemberg, while they increased 17 per cent. in France.

Events happened which transformed the state of mind, and without doubt the faith in the future, without modifying the natural conditions of production, and the view changes. During a second period of 35 years, from 1871 to 1915, the number of inhabitants increased 34 per cent. in Bavaria and 27 per cent. in Würtemberg, while the proportional increase fell to 9 per cent. in France.

A good element of appreciation of the activity and the power of expansion of a people is furnished by the development of its exports, or, if we consider ten states for which we can give at the same time the proportional increase of the number of inhabitants from 1875 to 1913 and the relative progress of exports, a close relation between the two movements is proved.

#### PROPORTIONAL INCREASE BETWEEN 1875 AND 1913

	Population Per cent.	Exports Per cent.
France .....	10	80
Italy .....	29	145
United Kingdom .....	45	160
Belgium .....	54	237
Russia .....	65	260
Austria-Hungary .....	38	383
German Empire .....	58	380
Canada .....	103	423
United States .....	138	386
Argentine Republic .....	330	828

The two series of numbers vary in the same direction.

#### IV.

What is to be concluded from these results? Simply that the phenomenon is too complex to be analyzed in its entirety without going back to elemental facts.

Let us turn to the father of the family, for it is in fact upon the fathers of families that the birth rate of the country depends. We have said that this decision depended most generally on three factors:

1. The expense represented by bringing up a child to the time when it can care for itself.

2. The chances this child has of living effectively, at least in the conditions under which its parents have lived.

3. The view of the parents on this expense and these chances.

Other factors intervene also: considerations of health, well-being, etc., but we will concern ourselves only with those which are most general and least synthetic.

It is not regrettable that, in this grave question, reason is substituted for the most simple instincts. We must force ourselves to see only that which commands the true meaning of things.

At the origin of the problem of the birth rate are found two economic and one psychological fact. This last dominates the two others, particularly the second. Moreover the psychological fact intervenes only where the customs and legislation are directed by the sentiment of respect for life. For among the primitive peoples, abortion and infanticide excuse the parents from thinking of the future. They let the sexual instinct act freely, for they may cause to disappear the results of this action, sometimes, as in Sparta, with the illusory forethought of selecting the survivors.

In our modern society, these procedures are no longer permitted; they are supplanted by the prevention of births; that is left to the will of the parents who bear the burdens. But this will is guided by judgment and sentiment. If judgment is clear and sound, if sentiment is right, the voluntary action will be well directed; in the contrary case, it will come to evil. But the first condition, in order that the parents be not hindered by a too fearful foresight, that they may act in a sense best conforming to the good of society of which they are a part, is that they have a certain moral force, that they know how to sacrifice a little of their personal interest to the common interest—for maternity always brings some sacrifice, at least physical—and that they have confidence in the future. One may say that the question of population is above all a moral question. A certain optimism is necessary but this optimism ought to follow from facts.

It is always imprudent to ask too much of the sentiment of duty when one addresses a whole population. During the war, when invasion roused patriotism, it was necessary to impose military service by force.

Even when it is a question of the birth rate, when general education, when the comparison of military or economic power of the country shows all families a common duty, nothing better is needed.

However, although in this matter no sanction will be legitimate or efficacious, still it will be proper to facilitate the accomplishment of this duty.

What concerns provision for the future is one of the legitimate preoccupations of the head of the family. The movement of general prosperity must be such as to make the establishment of children appear easy.

It is sometimes said that there are fewer children in well-to-do families than in poor families. This is true in the sense that if the income of poor families increases, the number of their children tends to diminish. But it is not really exact for all categories of rich or poor families.

Let us consider for instance the French statistics of 1906 where the families were classified according to the number of children born in these families, whether living or dead. In the families where the marriage has lasted 25 years or more, the number of children per 100 families is equal to 303 among clerks and increases to 360 among their employers, 409 among laborers, and more than 480 among fishermen and sailors of the merchant marine.

If one classifies the employers who have been married more than 25 years and who are from 60 to 70 years old, one finds that the mean number of children born in 100 families is only 305 in the liberal professions, that it increases to 347 in commerce, 370 in agriculture, 385 in all industries properly so-called.

The relative situation of employers in agriculture and industry is not the same when one considers the marriages which have lasted less than 25 years. For the marriages having lasted less than 5 years, from 5 to 14 years, or from 15 to 25 years, productivity is greater in agriculture than in industry. Everything happens as if the heads of agricultural enterprises, after having had a determined number of children more rapidly than the chiefs of industrial enterprises, stopped sooner than the latter.

The details of professions permit even a distinction between the groups of similar industries. The number of children for 100 married men exceeds 390 in mines and quarries, in the "minoterie," in the textile industries, in the enterprises of building and of transportation, while it falls to 350 and below in industries of food production, in goldsmithing and jewelry. Thus it appears that in the great industries the employers have more children and in the small ones fewer.

Among the commercial professions, the smaller number of children per 100 families is slightly higher among the butchers; it is least among bankers and heads of financial enterprises, who form a sort of transition between industrial or commercial professions and the liberal professions.



Thus, among employers, productivity seems bound, in a certain measure, to the professional characteristics, but these are rather complex. On the one hand, the intellectuality of the profession, if one may so call it, causes a small productivity, so that the number of children per family is small in the liberal professions, in the learned professions and in financial enterprises, while the manual professions have a productivity relatively higher; on the other hand, the heads of great industries seem to have a productivity higher than that of the small industries and merchants.

Two factors act in a quasi-independent way; on the one hand, the intellectual character of the professions, which leads to late marriages and creates an environment little favorable to fecundity for reasons which it is not necessary to develop here; on the other hand, preoccupation with the fate reserved for the children. In great industries, the latter will easily find employment for their abilities and will obtain without too many difficulties situations equivalent to those of their parents, either in or out of the country. In the little enterprises, on the contrary (except in special instances, such as that of butcher, where the employment of the entire family is almost a condition of success), the father of the family does not look ahead without uneasiness to the future laid out for his children.

Certain of these characteristics will be found among clerks and laborers. Among the clerks, it is the young butchers who show the greatest productivity, then the inspectors and foremen, whose productivity seems to border on that of the laborers. The smallest number of children is observed among the clerks of stores, waiters in cafés, hotels and restaurants, office and public service employees. Among the laborers, the greatest productivity—more than 5 children being born in a family founded more than 25 years—is among smaller laborers and workers in spinning mills. The lace weavers, of whom a great number work at home, have a smaller productivity than the spinners (489 per 100 families against 540 among the spinners). Moreover, in agriculture, the domestic workers of the farm, generally lodged at the farm, have 395 children per 100 families, while the field workers proper have 426.

But the industries in which the workers have less than 4 children per family are numerous. Those who have about 350 children per 100 families founded more than 25 years are makers of wooden shoes, coopers, toy makers, saddlers, tailors, printers, metalworkers, electricians, jewelers and silversmiths, various workers in commerce, drivers and deliverymen. It seems that professions of small industries, and especially professions in cities, give the smallest figures. For the masons, day laborers, and people without profession, generally employed in the cities, there are 464 children born per 100 families;

among the workers of industrial service of the state, roadmenders, etc., the productivity exceeds 390 children born per 100 families; it decreases to 360 among the police, and customs employees, etc., to 350 for workers and sub-agents of the post and telegraph service. Finally, among personal servants, it decreases to less than 3 children born per family, always for the heads of families married more than 25 years.

On the whole, among laborers and workers in great industries where the work is relatively regular and abundant, when the agricultural work offers a real stability, when the dwelling is either in the country or in industrial communities consisting of laborers of the same class, productivity is relatively high. It is lowest among the small artisans, in the trades carried on in cities, also where the profession demands physical force to the minimum degree. It is also small where the persons classified as workers are confined to the category of clerks and especially where the conditions of employment, the conditions of lodging make preferable households without children or with few, rather than households burdened with children.

From the preceding statements, we remember that if the workers in general have more children than the employers there are not lacking professions where they have fewer. In the second place, for one as for the other, it is the great industries which seem more favorable to productivity and small industries less favorable. Naturally here the environment exercises a certain influence, the regions of great industry being generally other than those of small industry.

The preceding observations (they are illustrated by the pictures shown in the exposition rooms of the congress) confirm, although not entirely, those that have often been made on the relation between fertility and social standing. This being at once a function of income and education, the most fortunate categories are those where education is the most refined, or where the number of children is the most limited. On the contrary, fertility would be greatest in the poorest environments, in those where the kind of life is the plainest.

If, in a general way, this observation contains a great element of truth—this is shown by the comparison of districts of great cities classified according to exterior signs of income—there are reservations which must be taken into account. There is no doubt, for example, that employers are generally more fortunately situated than their employees, and yet they have notably more children than the latter. On the other hand, employees who generally receive higher wages than laborers, have fewer children than the latter. The question has often been studied, and it is important that new contributions be brought to it.

We will borrow for new indications recent statistics of France drawn up by the aid of family bulletins filled out in 1907 by a great number of employees and workers remunerated by the budgets of the state,

departments and communes (Conseil supérieur de statistique, bulletins 10 et 11: "Statistique Générale de la France," "Statistique des familles en 1906").

These functionaries have been classified according to the annual showing of the actual emoluments and, considering only those whose marriages have lasted more than 15 years, the number of children born per 100 families has been calculated:

TABLE									
Annual salary in francs	500 at most	501 to 1000	1001 to 1500	1501 to 2500	2501 to 4000	4001 to 6000	6001 to 10000	more than 10000	Average
Marriages lasting 15 to 25 years.									
Clerks	277	241	259	245	223	231	239	238	237
Laborers	329	321	293	280	254	234	...	...	307
Marriages lasting more than 25 years.									
Clerks	330	301	305	280	264	264	261	286	285
Laborers	348	363	346	329	305	240	...	...	385

When all classes are taken together, the above figures are in accord with those which have been determined with the aid of the general census, either for clerks or for laborers or sub-agents of the public service.

Comparing now the numbers of children by classes of salaries, it will be noted that, among the laborers, the number of children diminishes regularly as the salary increases; among the clerks it diminishes until it reaches a minimum for clerks earning 2500 to 10,000 francs per year; it rises for clerks whose annual income exceeds 10,000 francs.

To complete these proofs, it is proper to remark that salaries and emoluments depend in great measure on the region or settlement where each clerk or laborer lives. Change in fertility is submitted to a double influence, showing that salary is only one of the factors involved.

The influence of environment becomes evident when we observe the families of limited classes of employees scattered throughout all France, generally in the rural communes the roadmenders and the rural police. For these employees, fertility is analogous to that of the population in the midst of which they live, greater in the regions of high birth rate, smaller in the regions with a low rate.

A similar investigation has been conducted among the clerks properly so called of prefectures and *mairies*. The personnel of the employees (not composed of boys, laborers, etc) has, in general, fewer children as the number of inhabitants of the city increases; the same is true of the populations of these cities. But a comparison between the fertility of these functionaries and general fertility shows that the first is less variable than the second.

In 1901, 100 families founded more than 15 years had 199 surviving children in Paris, 228 in cities of more than 500,000 inhabitants,

266 in the smaller cities. Among the administrative employees, the corresponding numbers are 183, 198, 215, or 92 per cent., 87 per cent. and 81 per cent. of the preceding. Employees have in some degree a specific fertility which depends less on environment than that of laborers. Results analogous to the preceding are obtained when the proportional number of sterile families is determined.

Among the marriages having lasted more than 25 years, the number of sterile marriages in 1,000 marriages, varies as follows, according to annual income:

Annual salary in francs	less than 1000	1001 to 1500	1501 to 2500	2501 to 4000	4001 to 6000	6001 to 10000	more than 10000	Average
Clerks	95	86	99	113	101	111	109	101
Laborers	70	74	91	98	100	...	...	78

And the proportional number of families having had more than 7 children:

Clerks	56	53	41	33	26	23	52	44
Laborers	95	86	75	55	50	..	..	88

On the whole, the statistics of French families permit us to see in what measure fertility is bound up with the social situation. Numerous factors intervene: for instance, the heads of enterprises in the most industrial regions of the country—the north, the region about Lyons—have many children, more children per family than many other less fortunate classes. Among the laborers, the miners of Pas-de-Calais have likewise many children in relation to other laborers. In these two cases, the parents have no fear as to the future of their children. The great employer knows that he can easily establish his; the mine laborer knows that there will always be work in the mine for his.

This sentiment becomes general when one perceives continued progress everywhere, in the agricultural, industrial and commercial movements, and in the action of public authorities in favor of education, apprenticeship, exportation, emigration and public works. Confidence in the future is then assured. It is this factor which seems to have played an important rôle in Germany after the constitution of the empire and the war of 1870. But the two factors which we have just considered, a certain courage on the one hand and a certain optimism on the other, do not suffice always; it seems useful to ward off at first the obstacles which we have recognized, that is to say, to lighten the burdens which the maintenance of children causes parents. Here it is proper to proceed methodically. Since it is a question of financial participation, it is expedient to exert the effort where it is most necessary and to seek to obtain the maximum result from the sums used. It is humane to seek that the children brought into the world be raised under the best conditions for health. It is good not to go against the

natural course of things, to limit oneself to bringing simply the spark which sets fire to the pile.

## V.

These considerations tend to favor the birth rate in the country. It is there that depopulation is raging—not that the birth rate is lower than in the cities (the contrary is true)—but because of the emigration from the country to the city. This is noticed when one compares the movement of the number of inhabitants in the French censuses of different periods, either in the urban or the rural population.

In 1856 the rural population was 26 million of the 36 million inhabitants in all France; in 1911, the number had fallen to 22 million, while the total population had increased to almost 40 million. The urban has been considerably augmented—almost doubled—passing from 9,800,000 inhabitants in 1856 to 17,500,000 in 1911. It has doubled also in the class of cities of more than 10,000 inhabitants.

It is useless consequently to seek to increase the population of cities by artificial means since they increase so rapidly by themselves that there is a veritable overcrowding in great cities. But it is necessary to increase the population of the country for reasons of hygiene, social stability, and also good economy, for it is there that children cost least.

It is in the country that the birth rate is already the highest, that one will find families best disposed to have numerous children. It is stated that the birth rate increases in proportion to the altitude. But, in France at least, it is from the high altitudes that have come the strongest currents of emigration.

Children cost much less to raise in the country than in the city. In the country poverty is most disquieting, which ought to cause farmers to assure themselves of a sufficient number of children capable of helping them by their work. There the growth of children takes place under the best conditions of health, especially if a system of maternal education is instituted; there one is near the foundation of the population, and there marriages are made with full knowledge of antecedents. Even as one rejuvenates trees from the stump, so the renewing of the population, necessary to combat retrogression, ought to be worked from the base. The best always come from a vigorous stock, as the best fruits and the most beautiful flowers spring from well grafted roots. In the cities, national effort ought to tend to improve lodgings, to facilitate rapid communication which will permit the largest extensions outside the crowded areas.

In France a law of July 14, 1913, gives to every family which has at least three children less than 13 years of age a monthly allotment for each child beyond the third under 13 years, while the child is living and has not reached the age of 13 years. The communes, the departments and the state share the expense. Another law, that of June 28,

1918, gives an important share of the state power to the departments which encourage births. This participation varies in inverse ratio to the richness of the department and in direct ratio to the number of families having more than 4 children. It carries at the same time the useful premium for the maintenance of children and a premium destined to assure a life-annuity to old parents or a capital to grown children.

In cities and industrial centers, numerous patronal associations have been formed to assure to laborers and clerks allotments varying according to the number of children. The treasury is kept filled by payments of heads of enterprises proportional to the salaries paid by each one of them. Thus the industrial head has no interest in employing a bachelor any more than a head of a family. The employees of the state and those of great private enterprises receive the same family allotments added to their salaries.

Finally, the fiscal legislation assures important exemptions to heads of large families and a surcharge to bachelors and families without children.

The tariffs of income tax—"impôts cédulaires et impôts globa"—takes account of the number of children; impôt globa surcharges the bachelors as well as married men without children. The inheritance taxes grant reductions according to the number of children living or represented, and surcharges when the defunct has left no children. Reductions are given on the railroads to members of families which have many children.

A severe law has been promulgated, July 31, 1920, against abortion and the sale of contraceptive measures.

An important movement thus exists in France which cannot but be favorable to increasing the birth rate. None of the measures adopted offers dispositions contrary to the legitimate exigencies of eugenics.

Let us add that the struggle against tuberculosis and the effects of venereal disease have gained much activity since the war; numerous dispensaries have been erected so that in spite of the increase of these diseases, one cannot find, as might have been feared, an increase in the special disability of children, excepting naturally those who were born or who passed their childhood in the regions invaded by the enemy.

The decline of the birth rate is a phenomenon which has shown itself in a great number of countries. The intensity of the movement is very different in different states; its effects depend in great part on the long or short duration of time since the phenomenon commenced to appear. The causes are almost the same everywhere; the means of combatting the causes are not known to be very different, although the action of moral influences depends naturally much on general mentality. As to the other influences, the experience of France can not fail to be instructive for all nations and for all those who are interested in this still conjectural science known as eugenics.